

CLAIMS

1. A method for removing leukocytes comprising causing a leukocyte-containing liquid to pass through a leukocyte removal filter comprising nonwoven fabric having an average fiber diameter of 0.3 to 3.0 μm to remove leukocytes from the leukocyte-containing liquid and to obtain a leukocyte-free liquid, and further comprising using nonwoven fabric having a formation index y of 50 or less corresponding to a thickness of 0.3 mm .

2. The method for removing leukocytes according to claim 1, wherein the nonwoven fabric has a filling rate of 0.05 to 0.30.

3. The method for removing leukocytes according to claim 1 or 2, wherein the nonwoven fabric has a formation index y of 50 or less corresponding to a thickness of 0.3 mm, and y satisfies the following inequality.

$$y < -4 \times \text{average fiber diameter of nonwoven fabric } (\mu\text{m}) + 55$$

4. The method for removing leukocytes according to any of claims 1 to 3, wherein the nonwoven fabric is obtained by using a melt-blown method.

5. The method for removing leukocytes according to any of claims 1 to 4, comprising: using a leukocyte removal filter comprising a filter for removing aggregate upstream of the nonwoven fabric according to any of claims 1 to 4 and/or a post-filter downstream of the nonwoven fabric.

6. The method for removing leukocytes according to any of claims 1 to 5, wherein the leukocyte removal filter is a flat filter having an inlet and an outlet for liquid.

7. The method for removing leukocytes according to any of claims 1 to 5, wherein

the leukocyte removal filter is a cylindrical filter having an inlet and an outlet for liquid.

8. The method for removing leukocytes according to claim 6, wherein a container of the leukocyte removal filter is formed of a flexible resin.

9. The method for removing leukocytes according to any of claims 1 to 8, comprising: causing the leukocyte-containing liquid selected from whole blood, red cell concentrate, platelet concentrate, platelet rich plasma, and platelet poor plasma to pass through the leukocyte removal filter.

10. The method for removing leukocytes according to any of claims 1 to 9, comprising: causing the leukocyte-containing liquid to pass through the leukocyte removal filter by utilizing head drop.

11. The method for removing leukocytes according to any of claims 1 to 9, comprising: causing the leukocyte-containing liquid to pass through the leukocyte removal filter by increasing pressure of the inlet side of the leukocyte removal filter and/or reducing pressure of the outlet side of the leukocyte removal filter.

12. The method for removing leukocytes according to any of claims 1 to 8 and 11, comprising: performing extracorporeal circulation by continuously collecting whole blood from a body of a patient, causing the collected whole blood to pass through the leukocyte removal filter, and returning the leukocyte-free whole blood to the body of the patient.

13. Use of a leukocyte removal filter having a formation index y of 50 or less corresponding to a thickness of 0.3 mm for a leukocyte removal method comprising removing leukocytes from a leukocyte-containing liquid by using a leukocyte removal filter comprising nonwoven fabric having an average fiber diameter of 0.3 to 3.0 μm .

14. The use of a leukocyte removal filter according to claim 13, wherein the nonwoven fabric has a filling rate of 0.05 to 0.30.

15. The use of a leukocyte removal filter according to claim 13 or 14, wherein the nonwoven fabric has a formation index y of 50 or less corresponding to a thickness of 0.3 mm, and y satisfies the following inequality.

$$y < -4 \times \text{average fiber diameter of nonwoven fabric } (\mu\text{m}) + 55$$

16. The use of a leukocyte removal filter according to any of claims 13 to 15, wherein the nonwoven fabric is obtained by using a melt-blown method.

17. The use of a leukocyte removal filter according to any of claims 13 to 16, wherein the leukocyte removal filter comprises a filter for removing aggregate upstream of the nonwoven fabric according to any of claims 13 to 16 and/or a post-filter downstream of the nonwoven fabric.

18. The use of a leukocyte removal filter according to any of claims 13 to 17, wherein the leukocyte removal filter is a flat filter having an inlet and an outlet for liquid.

19. The use of a leukocyte removal filter according to any of claims 13 to 17, wherein the leukocyte removal filter is a cylindrical filter having an inlet and an outlet for liquid.

20. The use of a leukocyte removal filter according to claim 18, wherein a container of the leukocyte removal filter is formed of a flexible resin.

21. The use of a leukocyte removal filter according to any of claims 13 to 20, for removing leukocytes from the leukocyte-containing liquid selected from whole blood, red

cell concentrate, platelet concentrate, platelet rich plasma, and platelet poor plasma.

22. The use of a leukocyte removal filter according to any of claims 13 to 21, for causing the leukocyte-containing liquid to pass through the leukocyte removal filter by utilizing head drop.

23. The use of a leukocyte removal filter according to any of claims 13 to 21, for causing the leukocyte-containing liquid to pass through the leukocyte removal filter by increasing pressure of the inlet side of the leukocyte removal filter and/or reducing pressure of the outlet side of the leukocyte removal filter.

24. The use of a leukocyte removal filter according to any of claims 13 to 20 and 23, for continuously collecting whole blood from a body of a patient and causing the collected whole blood to pass through the leukocyte removal filter.

25. A leukocyte removal filter for a leukocyte removal method for removing leukocytes from a leukocyte-containing liquid, comprising: nonwoven fabric having an average fiber diameter of 0.3 to 3.0 μm and a formation index y of 50 or less corresponding to a thickness of 0.3 mm.

26. The leukocyte removal filter according to claim 25, wherein the nonwoven fabric has a filling rate of 0.05 to 0.30.

27. The leukocyte removal filter according to claim 25 or 26, wherein the nonwoven fabric has a formation index y of 50 or less corresponding to a thickness of 0.3 mm, and y satisfies the following inequality.

$$y < -4 \times \text{average fiber diameter of nonwoven fabric } (\mu\text{m}) + 55$$

28. The leukocyte removal filter according to any of claims 25 to 27, wherein the

nonwoven fabric is obtained by using a melt-blown method.

29. A leukocyte removal filter, comprising: a filter for removing aggregate upstream of the nonwoven fabric according to any of claims 25 to 28 and/or a post-filter downstream of the nonwoven fabric.

30. The leukocyte removal filter according to any of claims 25 to 29, comprising a flat filter having an inlet and an outlet for liquid.

31. The leukocyte removal filter according to any of claims 25 to 29, comprising a cylindrical filter having an inlet and an outlet for liquid.

32. The leukocyte removal filter according to claim 30, wherein a container of the filter is formed of a flexible resin.

33. The leukocyte removal filter according to any of claims 25 to 32, wherein the leukocyte removal filter is used to remove leukocytes from the leukocyte-containing liquid selected from whole blood, red cell concentrate, platelet concentrate, platelet rich plasma, and platelet poor plasma.

34. A blood extracorporeal circulation device for blood, comprising: at least the leukocyte removal filter according to any of claims 25 to 33.

35. A blood extracorporeal circulation device for blood, comprising at least: the leukocyte removal filter according to any of claims 25 to 33; an inlet for introducing whole blood collected from a body of a patient into the leukocyte removal filter; and an outlet for returning the leukocyte-free whole blood to the body of the patient.